

Claims

1. A phosphorus-modified silane which contains at least one methoxy group bound to the silicon and has the general formula I:



where

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the radicals R^1 are each, independently of one another, a substituted or unsubstituted alkyl, alkenyl, cycloalkyl or aryl group having from 1 to 18 carbon atoms or an alkoxy group having from 2 to 18 carbon atoms,

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R^2 is a methoxy group,

the radicals R^4 are each, independently of one another, hydrogen, an alkyl, cycloalkyl or aryl group which has from 1 to 18 carbon atoms and may be substituted by fluorine, chlorine, alkoxy, amine, cyanate or isocyanate groups or be unsubstituted,

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the radicals R^5 are each, independently of one another, a substituted or unsubstituted alkoxy group or aryloxy group having from 1 to 18 carbon atoms, a substituted or unsubstituted polyalkylene oxide having from 1 to 4000 carbon atoms and

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a is an integer from 0 to 2,

with the proviso that R^1 , R^4 or R^5 can together be part of a cyclic compound.

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2. A process for preparing phosphorus-modified silanes which contain at least one methoxy group bound to the silicon and have the general formula I:



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where

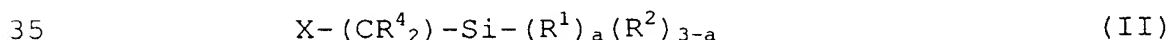
the radicals R^1 are each, independently of one another,
 10 a substituted or unsubstituted alkyl, alkenyl, cycloalkyl or aryl group having from 1 to 18 carbon atoms or an alkoxy group having from 2 to 18 carbon atoms,

15 R^2 is a methoxy group,
 the radicals R^4 are each, independently of one another, hydrogen, an alkyl, cycloalkyl or aryl group which has from 1 to 18 carbon atoms and may be substituted by
 20 fluorine, chlorine, alkoxy, amine, cyanate or isocyanate groups or be unsubstituted,

the radicals R^5 are each, independently of one another, a substituted or unsubstituted alkoxy group or aryloxy group having from 1 to
 25 18 carbon atoms, a substituted or unsubstituted polyalkylene oxide having from 1 to 4000 carbon atoms and

a is an integer from 0 to 2,
 30

with the proviso that R^1 , R^4 or R^5 can together be part of a cyclic compound, characterized in that compounds of the general formula II:



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where

X is fluorine, chlorine, bromine or iodine,

are reacted with compounds of the general formula
5 (III):



3. The process as claimed in claim 2, characterized
10 in that the reaction is carried out at temperatures of
from 0 to 300°C.

4. The process as claimed in claim 2 or 3,
characterized in that the reaction is carried out at
15 temperatures of from 80 to 170°C.

5. The process as claimed in at least one of claims 2
to 4, characterized in that the reaction component of
the general formula III is reacted in an excess of from
20 0.01 to 300 mol% with a silane of the general formula
(II).

6. The process as claimed in at least one of claims 2
to 5, characterized in that the reaction component of
25 the general formula III is reacted in an excess of from
10 to 100 mol% with a silane of the general formula II.

7. The process as claimed in at least one of claims 2
to 6, characterized in that the reaction is carried out
30 in the absence of a solvent.

8. The process as claimed in at least one of claims 2
to 7, characterized in that the reaction is carried out
at a pressure of from 1 to 10 bar.

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9. The use of the phosphorus-modified silane of the
general formula I as claimed in claim 1 as additive in
antifreezes or as coating agent.

10. A cohydrolysis of the phosphorus-modified silanes of the general formula I as claimed in claim 1 in combination with alkoxyalkylsilanes for preparing functionalized resins.